S2A THRU S2M

SURFACE MOUNT GENERAL RECTIFIERS
Reverse Voltage – 50 to 1000 Volts
Forward Current – 2.0 Amperes

Features
- Plastic package has Underwriters Laboratories Flammability Classification 94V-0
- High forward surge current capability
- For surface mounted applications
- Low reverse leakage
- Built-in strain relief, ideal for automated placement
- High temperature soldering guaranteed: 250/10sec at terminals

Mechanical Data
- Case: JEDEC DO-214AA, molded plastic body
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Mounting Position: Any

Absolute Maximum Ratings and Characteristics
Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load current derate by 20%.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Symbols</th>
<th>S2A</th>
<th>S2B</th>
<th>S2D</th>
<th>S2G</th>
<th>S2J</th>
<th>S2K</th>
<th>S2M</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum recurrent peak reverse voltage</td>
<td>(V_{\text{RRM}})</td>
<td>50</td>
<td>100</td>
<td>200</td>
<td>400</td>
<td>600</td>
<td>800</td>
<td>1000</td>
<td>V</td>
</tr>
<tr>
<td>Maximum RMS voltage</td>
<td>(V_{\text{RMS}})</td>
<td>35</td>
<td>70</td>
<td>140</td>
<td>280</td>
<td>420</td>
<td>560</td>
<td>700</td>
<td>V</td>
</tr>
<tr>
<td>Maximum DC blocking voltage</td>
<td>(V_{\text{DC}})</td>
<td>50</td>
<td>100</td>
<td>200</td>
<td>400</td>
<td>600</td>
<td>800</td>
<td>1000</td>
<td>V</td>
</tr>
<tr>
<td>Maximum average forward rectified current at (T_L = 110,\degree)C</td>
<td>(I_{\text{F(AV)}})</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0</td>
<td></td>
<td></td>
<td>A</td>
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<tr>
<td>Peak forward surge current</td>
<td>(I_{\text{FSM}})</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td></td>
<td>A</td>
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<tr>
<td>8.3ms single half sine-wave superimposed on rated load (JEDEC Method)</td>
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<tr>
<td>Maximum Instantaneous forward voltage at 2.0A</td>
<td>(V_f)</td>
<td></td>
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<td></td>
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<td></td>
<td>1.1</td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>Maximum DC reverse current at (T_A = 25)°C</td>
<td>(I_r)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.0</td>
<td></td>
<td>(\mu)A</td>
</tr>
<tr>
<td>at rated DC blocking voltage at (T_A = 100)°C</td>
<td>(I_{r})</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td></td>
<td></td>
<td>(\mu)A</td>
</tr>
<tr>
<td>Typical Junction Capacitance at (V_R = 4.0,\text{V}, f = 1,\text{MHz})</td>
<td>(C_{\text{tot}})</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td></td>
<td>pF</td>
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<tr>
<td>Typical thermal resistance (Note 1)</td>
<td>(R_{\text{th}})</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td></td>
<td>(\degree)C/W</td>
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<tr>
<td>Operating junction and storage temperature range</td>
<td>(T_J, T_S)</td>
<td></td>
<td></td>
<td></td>
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<td>-65  to +175</td>
<td></td>
<td>°C</td>
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</tbody>
</table>

Notes: 1. P.C.B. mounted with 0.2 ×0.2” (5.0 ×5.0mm²) copper pad areas
FIG. 1 - FORWARD DERATING CURVE

Single phase half wave 60 Hz resistive or inductive load

AMBIENT TEMPERATURE, °C

AVERAGE FORWARD RECTIFIED CURRENT, A

FIG. 2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

8.3ms Single half Sine Wave (JEDEC Method)

NUMBER OF CYCLES AT 60Hz

PEAK FORWARD SURGE CURRENT, A

FIG. 3 - TYPICAL FORWARD CHARACTERISTICS

TJ=25 °C
PULSE WIDTH=300 µs
1% DUTY CYCLE

INSTANTANEOUS FORWARD CURRENT (A)

INSTANTANEOUS FORWARD VOLTAGE (V)

FIG. 4 - TYPICAL REVERSE CHARACTERISTICS

TJ=150 °C

INSTANTANEOUS REVERSE CURRENT (A)

PERCENT OF RATED PEAK REVERSE VOLTS, %

FIG. 5 - TYPICAL JUNCTION CAPACITANCE

TJ=25 °C

JUNCTION CAPACITANCE, pF

REVERSE VOLTAGE, V

FIG. 6 - TYPICAL TRANSIENT THERMAL IMPEDANCE

TJ=25 °C

TRANSIENT THERMAL IMPEDANCE (°C/W)

t, PULSE DURATION (sec.)